Please add claims 57-112 as follows:

57. A multi-format adaptive plesiochronous network, comprising:

a first router;

a topology adaptive tie-line having a plurality of full duplex dedicated router interconnects connected to said first router, the topology adaptive tie-line transmitting at least non-packetized latency free continuous data;

a second router connected to said plurality of full duplex dedicated router interconnects; and

a user connected to said first router with a full duplex loop.

58. The multi-format adaptive plesiochronous network of claim 57, wherein each of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber, a pair of simplex optical fibers, a single full duplex frequency division multiplexer electrical wire, and a pair of simplex electrical wires.

59. The multi-format adaptive plesiochronous network of claim 57, wherein each of said plurality of full duplex dedicated router interconnects are selected from the group consisting of a looping, point-to-point connection, and a parallel ring connection.

60. The multi-format adaptive plesiochronous network of claim 57, wherein said plurality of full duplex dedicated router interconnects includes a reconfigurable full duplex point-to-point connection which is adapted for passing control network data from the user to another user.

61. The multi-format adaptive plesiochronous network of claim 57, wherein said plurality of full duplex dedicated router interconnects includes a permanent full duplex looping point to point connection which is adapted for passing control network data from the user to another user.

62. The multi-format adaptive plesiochronous network of claim 57, wherein the user includes:

I) a signal transmitting system for transmittal of a serialized signal including (A) latency free continuous data, and (B) at least one member selected from the group consisting of bursty data and packetized data, said signal transmitting system including a multiplexer and a timing control block; and

II) a signal receiving system for reception of said signal without disrupting the laminarity of the latency free continuous data, said signal receiving system including a demultiplexer and a sequence detector,

so as to establish full duplex communications between the user and another user on one of said plurality of full duplex dedicated router interconnects.

63. The multi-format adaptive plesiochronous network of claim 62, wherein said multiplexer includes a structure which simultaneously transfers of base band latency free continuous real-time multimedia data.

64. The multi-format adaptive plesiochronous network of claim 62, wherein said multiplexer includes a time division multiplexer and at least one of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber and a pair of simplex optical fibers.

65. The multi-format adaptive plesiochronous network of claim 60, wherein said multiplexer includes a multiplexer network access port which is adapted for simultaneous (I) full duplex messaging between the user and the another user and (II) management of said network including dynamic reallocation of network resources, said multiplexer network access port being selected from the group consisting of structure for asynchronous data communication and structure for packetized data communication.

66. The multi-format adaptive plesiochronous network of claim 65, wherein said multiplexer network access port is selected from the group consisting of an RS232 with full hand shake port, an RS422 port, an RS485 port, a SCSI port and a full duplex 10Mb/sec packetized data port.

67. The multi-format adaptive plesiochronous network of claim 60, wherein (I) said multiplexer includes a clock multiplier, an encoder, a framer and a parallel to serial convertor, and (II) the user and includes an analog-to digital converter, a first-in-first-out memory buffer having an almost empty flag, a digital to analog convertor, a counter register and a latch.

68. The multi-format adaptive plesiochronous network of claim 57, wherein the user includes a switch for dropping and adding signals.

69. The multi-format adaptive plesiochronous network of claim 57, wherein the user includes a 1:2 bypass switch for redundant switching.

70. The multi-format adaptive plesiochronous network of claim 57, wherein there are n users, N lines, where N < n, and the system is quasi-latency free such that there is no contention at least part of the time.

71. An apparatus, comprising a network, said network including:

a first router;

a tie-line having a plurality of full duplex dedicated router interconnects connected to said first router, the tie line transmitting at least non-packetized latency free continuous data;

a second router connected to said plurality of full duplex dedicated router interconnects; and

a user connected to said first router with a full duplex loop.

72. The apparatus of claim 71, wherein each of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber, a pair of simplex optical fibers, a single full duplex frequency division multiplexer electrical wire, and a pair of simplex electrical wires.

73. The apparatus of claim 71, wherein each of said plurality of full duplex dedicated router interconnects are selected from the group consisting of a looping, point-to-point connection, and a parallel ring connection.

74. The apparatus of claim 71, wherein said plurality of full duplex dedicated router interconnects includes a reconfigurable full duplex point-to-point connection which is adapted for passing control network data from the user to another user.

75. The apparatus of claim 71, wherein said plurality of full duplex dedicated router interconnects includes a permanent full duplex looping point to point connection which is adapted for passing control network data from the user to another user.

76. The apparatus of claim 71, wherein the user includes:

I) a signal transmitting system for transmittal of a serialized signal including (A) latency free continuous data, and (B) at least one member selected from the group consisting of bursty data and packetized data, said signal transmitting system including a multiplexer and a timing control block; and

II) a signal receiving system for reception of said signal without disrupting the laminarity of the latency free continuous data, said signal receiving system including a demultiplexer and a sequence detector,

so as to establish full duplex communications between the user and another user on one of said plurality of full duplex dedicated router interconnects.

77. The apparatus of claim 76, wherein said multiplexer includes a structure which simultaneously transfers of base band latency free continuous real-time multimedia data.

78. The apparatus of claim 76, wherein said multiplexer includes a time division multiplexer and at least one of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber and a pair of simplex optical fibers.

79. The apparatus of claim 74, wherein said multiplexer includes a multiplexer network access port which is adapted for simultaneous (I) full duplex messaging between the user and the another user and (II) management of said network including dynamic reallocation of network resources, said multiplexer network access port being selected from the group consisting of structure for asynchronous data communication and structure for packetized data communication.

80. The apparatus of claim 79, wherein said multiplexer network access port is selected from the group consisting of an RS232 with full hand shake port, an RS422 port, an RS485 port, a SCSI port and a full duplex 10Mb/sec packetized data port.

81. The apparatus of claim 74, wherein (I) said multiplexer includes a clock multiplier, an encoder, a framer and a parallel to serial convertor, and (II) the user includes an analog-to digital converter, a first-in-first-out memory buffer having an almost empty flag, a digital to analog convertor, a counter register and a latch.

82. The apparatus of claim 71, wherein the user includes a switch for dropping and adding signals.

83. The apparatus of claim 71, wherein the user includes a 1:2 bypass switch for redundant switching.

84. The apparatus of claim 71, wherein there are n users, N lines, where N < n, and the system is quasi-latency free such that there is no contention at least part of the time.

85. A multi-format adaptive plesiochronous network, comprising:

a first router;

a topology adaptive tie-line having a plurality of full duplex dedicated router interconnects connected to said first router, the topology adaptive tie-line transmitting at least latency free

continuous data, the topology adaptive tie-line also transmitting router reconfiguration data multiplexed with the latency free continuous data;

a second router connected to said plurality of full duplex dedicated router interconnects; and

a user connected to said first router with a full duplex loop.

86. The multi-format adaptive plesiochronous network of claim 85, wherein each of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber, a pair of simplex optical fibers, a single full duplex frequency division multiplexer electrical wire, and a pair of simplex electrical wires.

87. The multi-format adaptive plesiochronous network of claim 85, wherein each of said plurality of full duplex dedicated router interconnects are selected from the group consisting of a looping, point-to-point connection, and a parallel ring connection.

88. The multi-format adaptive plesiochronous network of claim 85, wherein said plurality of full duplex dedicated router interconnects includes a reconfigurable full duplex point-to-point connection which is adapted for passing control network data from the user to another user.

89. The multi-format adaptive plesiochronous network of claim 85, wherein said plurality of full duplex dedicated router interconnects includes a permanent full duplex looping point to point connection which is adapted for passing control network data from the user to another user.

90. The multi-format adaptive plesiochronous network of claim 85, wherein the user includes:

I) a signal transmitting system for transmittal of a serialized signal including (A) latency free continuous data, and (B) at least one member selected from the group consisting of bursty data and packetized data, said signal transmitting system including a multiplexer and a timing control block; and

II) a signal receiving system for reception of said signal without disrupting the laminarity of the latency free continuous data, said signal receiving system including a demultiplexer and a sequence detector,

so as to establish full duplex communications between the user and another user on one of said plurality of full duplex dedicated router interconnects.

91. The multi-format adaptive plesiochronous network of claim 90, wherein said multiplexer includes a structure which simultaneously transfers of base band latency free continuous real-time multimedia data.

92. The multi-format adaptive plesiochronous network of claim 90, wherein said multiplexer includes a time division multiplexer and at least one of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber and a pair of simplex optical fibers.

93. The multi-format adaptive plesiochronous network of claim 88, wherein said multiplexer includes a multiplexer network access port which is adapted for simultaneous (I) full duplex messaging between the user and the another user and (II) management of said network including dynamic reallocation of network resources, said multiplexer network access port being selected from the group consisting of structure for asynchronous data communication and structure for packetized data communication.

94. The multi-format adaptive plesiochronous network of claim 93, wherein said multiplexer network access port is selected from the group consisting of an RS232 with full hand shake port, an RS422 port, an RS485 port, a SCSI port and a full duplex 10Mb/sec packetized data port.

95. The multi-format adaptive plesiochronous network of claim 88, wherein (I) said multiplexer includes a clock multiplier, an encoder, a framer and a parallel to serial convertor, and (II) both the user and the another user include an analog-to digital converter, a first-in-first-out memory buffer having an almost empty flag, a digital to analog convertor, a counter register and a latch.

96. The multi-format adaptive plesiochronous network of claim 85, wherein the user includes a switch for dropping and adding signals.

97. The multi-format adaptive plesiochronous network of claim 85, wherein the user includes a 1:2 bypass switch for redundant switching.

98. The multi-format adaptive plesiochronous network of claim 85, wherein there are n users, N lines, where N < n, and the system is quasi-latency free such that there is no contention at least part of the time.

99. An apparatus, comprising a network, said network including:

a first router;

a tie-line having a plurality of full duplex dedicated router interconnects connected to said first router, the tie line transmitting router reconfiguration data multiplexed with latency free continuous data;

a second router connected to said plurality of full duplex dedicated router interconnects; and

a user connected to said first router with a full duplex loop.

100. The apparatus of claim 99, wherein each of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber, a pair of simplex optical fibers, a single full duplex frequency division multiplexer electrical wire, and a pair of simplex electrical wires.

101. The apparatus of claim 99, wherein each of said plurality of full duplex dedicated router interconnects are selected from the group consisting of a looping, point-to-point connection, and a parallel ring connection.

102. The apparatus of claim 99, wherein said plurality of full duplex dedicated router interconnects includes a reconfigurable full duplex point-to-point connection which is adapted for passing control network data from the user to another user.

103. The apparatus of claim 99, wherein said plurality of full duplex dedicated router interconnects includes a permanent full duplex looping point to point connection which is adapted for passing control network data from the user to another user.

104. The apparatus of claim 99, wherein the user includes:

I) a signal transmitting system for transmittal of a serialized signal including (A) latency free continuous data, and (B) at least one member selected from the group consisting of

bursty data and packetized data, said signal transmitting system including a multiplexer and a timing control block; and

II) a signal receiving system for reception of said signal without disrupting the laminarity of the latency free continuous data, said signal receiving system including a demultiplexer and a sequence detector,

so as to establish full duplex communications between the user and another user on one of said plurality of full duplex dedicated router interconnects.

105. The apparatus of claim 104, wherein said multiplexer includes a structure which simultaneously transfers of base band latency free continuous real-time multimedia data.

106. The apparatus of claim 104, wherein said multiplexer includes a time division multiplexer and at least one of said plurality of full duplex dedicated router interconnects is selected from the group consisting of a single full duplex wave division multiplexer optical fiber and a pair of simplex optical fibers.

107. The apparatus of claim 102, wherein said multiplexer includes a multiplexer network access port which is adapted for simultaneous (I) full duplex messaging between the user and the another user and (II) management of said network including dynamic reallocation of network resources, said multiplexer network access port being selected from the group consisting of structure for asynchronous data communication and structure for packetized data communication.

108. The apparatus of claim 107, wherein said multiplexer network access port is selected from the group consisting of an RS232 with full hand shake port, an RS422 port, an RS485 port, a SCSI port and a full duplex 10Mb/sec packetized data port.

109. The apparatus of claim 102, wherein (I) said multiplexer includes a clock multiplier, an encoder, a framer and a parallel to serial convertor, and (II) the user includes an analog-to digital converter, a first-in-first-out memory buffer having an almost empty flag, a digital to analog convertor, a counter register and a latch.

A3 Concl.

110. The apparatus of claim 99, wherein the user includes a switch for dropping and adding signals.

111. The apparatus of claim 99, wherein the user includes a 1:2 bypass switch for redundant switching.

112. The apparatus of claim 99, wherein there are n users, N lines, where N < n, and the system is quasi-latency free such that there is no contention at least part of the time.

REMARKS

Claims 57-112 are pending in this application. By this Amendment, claims 57-112 added and claims 1-56 are cancelled without prejudice or disclaimer. Claims 57-112 are added to incorporate the subject matter of restricted claims 15-36 and 51-56 of parent U.S. Patent Application Serial No. 08/861,438. Reconsideration in view of the above amendments and the following remarks is respectfully requested.